

Amendments To The Claims

This listing of claims will replace all prior versions, and listings, of the claims in the application:

Listing of Claims:

Claim 1 (currently amended) A control system for a machine which includes a load handling apparatus, the load being moveable relative to a body of the machine by the load handling apparatus, the load handling apparatus being a lifting arm which is moveable about a generally horizontal axis relative to the body of the machine, the arm thus being capable of raising and lowering the load upon operation of a fluid operated actuator the machine including a pivot about which a tipping moment is produced by the load, the load handling apparatus including an actuator and being capable of moving lowering the load to a position at which the tipping moment is at a predetermined threshold value, the control system including a sensor to sense when the value of the tipping moment is approaching the threshold value and in use, to provide an input to a controller in response, the controller being responsive to the input to operate a proportional valve to reduce the flow of fluid to influence operation of] the actuator so that in the event that the sensor senses that the value of the tipping moment is approaching the threshold value, the speed of movement of the load is progressively reduced as the lifting arm is continued to be lowered.

Claim 2 (cancelled)

Claim 3 (cancelled)

Claim 4 (currently amended) A system according to claim 1 2 wherein the lifting arm includes a plurality of relatively moveable sections, and the controller influences operation of a second actuator which relatively moves the arm sections as the tipping moment approaches the threshold value.

Claim 5 (original) A system according to claim 4 wherein the relatively moveable sections are telescopic.

Claim 6 (currently amended) A system according to claim 1 2 wherein the arm carries a load handling implement which is movable on the arm by operation of a third actuator and the controller influences operation of the third actuator as the tipping moment approaches the threshold value.

Claim 7 (original) A system according to claim 6 wherein the load handling implement is a loading forks.

Claim 8 (currently amended) A system according to ~~any one of claims 1 to 7~~ claim 1 wherein the speed of movement of the load is progressively reduced and is stopped altogether when the tipping moment is at the threshold value.

Claim 9 (currently amended) A system according to ~~any one of the preceding claims~~ claim 1 wherein the machine includes a ground engaging structure by which the machine is supported on the ground the ground engaging structure including a pair of supports, the tipping moment being produced about a pivot axis established by one of the supports, the tipping moment being sensed by the sensor sensing loading of one of the supports.

Claim 10 (cancelled)

Claim 11 (cancelled)

Claim 12 (currently amended) A system according to ~~any one of claims~~ claim 9 to 11 wherein the machine is a wheeled load handling machine having a ground engaging structure including a pair of supports provided by axles which each carry wheels.

Claim 13 (original) A system according to claim 12 wherein the tipping moment is produced about a rotational axis of one of the pairs of wheels and the sensor senses the loading on the other pair of wheels.

Claim 14 (cancelled)

Claim 15 (cancelled)

Claim 16 (currently amended) A system according to claim 1 ~~14 or claim 15~~ wherein the fluid operated actuator is a double acting linear hydraulic ram.

Claim 17 (currently amended) A system according to ~~any one of the preceding claims~~ claim 1 wherein the sensor is a transducer which provides an electrical input signal to the controller.

Claim 18 (currently amended) A system according to ~~any one of the preceding claims~~ claim 8 wherein ~~where~~ the load handling apparatus includes a plurality of actuators, ~~and in the event that~~ the controller ~~influences the operation of one of the actuators as~~ ~~the value of the tipping moment approaches the threshold value by progressively~~ ~~reducing the permitted flow of fluid from the actuator, and prevents the flow of fluid~~ to or from the raising and lowering remaining actuator ~~or at least one of the remaining~~ actuators if the tipping moment value reaches the threshold value, the controller ~~permits one or more of the whilst permitting only~~ further actuators ~~to be operated to~~ perform a correctional operation which will result in a reduction in the tipping moment.

Claim 19 (original) A system according to claim 18 wherein where the load handling implement is a lifting forks, and during any permitted correctional actuator operation, the attitude of the lifting forks relative to the ground is automatically maintained.

Claim 20 (currently amended) A system according to claim 19 ~~where appendant to claim 2~~ wherein the ~~load handling apparatus is a lifting arm and the machine includes~~ a displacement actuator which is operated as the lifting arm is raised and lowered to exchange fluid with an actuator which controls the attitude of the load handling implement relative to the ground, and during correctional actuator operation, when the raising and lowering actuator is isolated, fluid pressure in a circuit containing the attitude controlling and displacement actuators is maintained.

Claim 21 (currently amended) A system according to ~~any one of the preceding claims~~ claim 1 wherein the controller operates according to an algorithm which enables the controller to ignore transient changes of loading sensed by the sensor as a result of changing machine dynamics or of reaction to initial lift arm movements.

Claim 22 (cancelled)

Claim 23 (currently amended) A machine having a control system ~~according to any one of the preceding claims~~ which includes a load handling apparatus, the load being moveable relative to a body of the machine by the load handling apparatus, the load handling apparatus being a lifting arm which is moveable about a generally horizontal axis relative to the body of the machine, the arm thus being capable of raising and lowering the load upon operation of a fluid operated actuator the machine including a pivot about which a tipping moment is produced by the load, the load handling apparatus being capable of lowering the load to a position at which the tipping moment is at a predetermined threshold value, the control system including a sensor to sense when the value of the tipping moment is approaching the threshold value and, to provide an input to a controller in response, the controller being responsive to the input to operate a proportional valve to reduce the flow of fluid to the actuator so that the speed of movement of the load is progressively reduced as the lifting arm is continued to be lowered.

Claim 24 (cancelled)

Claim 25 (currently amended) A load handling apparatus controlled by a control system ~~according to an one of claims 1 to 22 which includes a load handling apparatus, the load being moveable relative to a body of the machine by the load handling apparatus, the load handling apparatus being a lifting arm which is moveable about a generally horizontal axis relative to the body of the machine, the arm thus being capable of raising and lowering the load upon operation of a fluid operated actuator the machine including a pivot about which a tipping moment is produced by the load, the load handling apparatus being capable of lowering the load to a position at which the tipping moment is at a predetermined threshold value, the control system including a sensor to sense when the value of the tipping moment is approaching the threshold value and, to provide an input to a controller in response, the controller being responsive to the input to operate a proportional valve to reduce the flow of fluid to the actuator so that the speed of movement of the load is progressively reduced as the lifting arm is continued to be lowered.~~

Claim 26 (cancelled)

Claim 27 (cancelled)

Claim 28 (cancelled)